



DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2021-0567; Project Identifier AD-2021-00663-E]

RIN 2120-AA64

Airworthiness Directives; General Electric Company Turbofan Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: The FAA proposes to adopt a new airworthiness directive (AD) for certain General Electric Company (GE) GE90 model turbofan engines. This proposed AD was prompted by two separate in-flight shutdowns (IFSDs) resulting from failure of the transfer gearbox (TGB) radial bevel gear (TGB radial gearshaft). This proposed AD would require visual inspection of the TGB radial gearshaft and, depending on the results of the inspection, replacement of the TGB radial gearshaft. The FAA is proposing this AD to address the unsafe condition on these products.

DATES: The FAA must receive comments on this proposed AD by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

- Federal eRulemaking Portal: Go to <https://www.regulations.gov>. Follow the instructions for submitting comments.
- Fax: (202) 493-2251.
- Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE, Washington, DC 20590.
- Hand Delivery: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this NPRM, contact General Electric Company, GE Aviation, Room 285, 1 Neumann Way, Cincinnati, OH 45215; phone:

(513) 552-3272; email: aviation.fleetsupport@ae.ge.com; website: www.ge.com. You may view this service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 1200 District Avenue, Burlington, MA 01803. For information on the availability of this material at the FAA, call (781) 238-7759.

Examining the AD Docket

You may examine the AD docket at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2021-0567; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this NPRM, any comments received, and other information. The street address for Docket Operations is listed above.

FOR FURTHER INFORMATION CONTACT: Stephen Elwin, Aviation Safety Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803; phone: (781) 238-7236; fax: (781) 238-7199; email: Stephen.L.Elwin@faa.gov.

SUPPLEMENTARY INFORMATION:

Comments Invited

The FAA invites you to send any written relevant data, views, or arguments about this proposal. Send your comments to an address listed under ADDRESSES. Include “Docket No. FAA-2021-0567; Project Identifier AD-2021-00663-E” at the beginning of your comments. The most helpful comments reference a specific portion of the proposal, explain the reason for any recommended change, and include supporting data. The FAA will consider all comments received by the closing date and may amend this proposal because of those comments.

Except for Confidential Business Information (CBI) as described in the following paragraph, and other information as described in 14 CFR 11.35, the FAA will post all comments received, without change, to <https://www.regulations.gov>, including any personal information you provide. The agency will also post a report summarizing each substantive verbal contact received about this NPRM.

Confidential Business Information

CBI is commercial or financial information that is both customarily and actually treated as private by its owner. Under the Freedom of Information Act (FOIA) (5 U.S.C.

552), CBI is exempt from public disclosure. If your comments responsive to this NPRM contain commercial or financial information that is customarily treated as private, that you actually treat as private, and that is relevant or responsive to this NPRM, it is important that you clearly designate the submitted comments as CBI. Please mark each page of your submission containing CBI as “PROPIN.” The FAA will treat such marked submissions as confidential under the FOIA, and they will not be placed in the public docket of this NPRM. Submissions containing CBI should be sent to Stephen Elwin, Aviation Safety Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803. Any commentary that the FAA receives which is not specifically designated as CBI will be placed in the public docket for this rulemaking.

Background

The FAA was notified of two separate IFSDs resulting from the failure of the TGB radial gearshaft. After further investigation, the manufacturer determined that rework on the TGB radial gearshaft teeth chamfers during manufacturing may have caused local burrs and micro-cracks which led to high-cycle fatigue failure. GE subsequently issued service information to provide instructions for a one-time visual inspection of the affected radial gearshafts for the presence of burrs or rework on TGB gearshaft teeth chamfers. This condition, if not addressed, could result in failure of one or more engines, loss of thrust control, and damage to the aircraft.

FAA’s Determination

The FAA is issuing this NPRM after determining that the unsafe condition described previously is likely to exist or develop on other products of the same type design.

Related Service Information under 1 CFR Part 51

The FAA reviewed GE GE90 Service Bulletin (SB) 72-1201 R01, dated April 28, 2021 (GE90 SB 72-1201 R01), and GE GE90-100 SB 72-0857 R01, dated April 28, 2021 (GE90-100 SB 72-0857 R01). GE90 SB 72-1201 R01 specifies procedures for performing a one-time inspection of the TGB radial gearshaft for presence of burrs or rework on teeth chamfers on GE90-76B, GE90-85B, GE90-90B, and GE90-94B model turbofan engines. GE90-100 SB 72-0857 R01 specifies procedures for performing a one-

time inspection of the TGB radial gearshaft for presence of burrs or rework on teeth chamfers on GE90-110B1 and GE90-115B model turbofan engines. This service information is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in ADDRESSES.

Proposed AD Requirements in this NPRM

This proposed AD would require visual inspection of the TGB radial gearshaft and, depending on the results of the inspection, replacement of the TGB gearshaft.

Differences Between this Proposed AD and the Service Information

GE90 SB 72-1201 R01 and GE90-100 SB 72-0857 R01 identify affected TGB radial gearshafts with serial numbers (S/Ns) listed in paragraph 4., APPENDIX - A, Table 1, and with serial numbers starting with prefix FIAAXXXX, FIA05XXX to FIA09XXX, or FIA0AXXX to FIA0NXXX. This AD applies only to TGB radial gearshafts with S/Ns listed in paragraph 4., APPENDIX - A, Table 1 of GE90 SB 72-1201 R01 and GE90-100 SB 72-0857 R01. The FAA determined that TGB radial gearshafts with S/Ns starting with prefix FIAAXXXX, FIA05XXX to FIA09XXX, or FIA0AXXX to FIA0NXXX are not required to be inspected and removed as part of this AD. However, operators may still elect to inspect the TGB radial gearshaft with these S/Ns at the next scheduled engine shop visit.

Costs of Compliance

The FAA estimates that this AD, if adopted as proposed, would affect 126 engines installed on airplanes of U.S. registry.

The FAA estimates the following costs to comply with this proposed AD:

Estimated costs

Action	Labor Cost	Parts Cost	Cost per product	Cost on U.S. operators
Inspect TGB radial gearshaft	1 work-hour x \$85 per hour = \$85	\$0	\$85	\$10,710

The FAA estimates the following costs to do any necessary replacement that would be required based on the results of the proposed inspection. The agency has no way of determining the number of aircraft that might need this replacement:

On-condition costs

Action	Labor Cost	Parts Cost	Cost per product
Replace TGB radial gearshaft	60 work-hours x \$85 per hour = \$5,100	\$24,520	\$29,620

Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. Subtitle VII: Aviation Programs, describes in more detail the scope of the Agency's authority.

The FAA is issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701: General requirements. Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

The FAA determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify this proposed regulation:

- (1) Is not a "significant regulatory action" under Executive Order 12866,
- (2) Would not affect intrastate aviation in Alaska, and
- (3) Would not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

The Proposed Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 14 CFR part 39 as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. The FAA amends § 39.13 by adding the following new airworthiness directive:

General Electric Company: Docket No. FAA-2021-0567; Project Identifier AD-2021-00663-E.

(a) Comments Due Date

The FAA must receive comments on this airworthiness directive (AD) by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

None.

(c) Applicability

This AD applies to General Electric Company (GE) GE90-76B, GE90-85B, GE90-90B, GE90-94B, GE90-110B1, and GE90-115B model turbofan engines with a transfer gearbox (TGB) radial bevel gear (TGB radial gearshaft) serial number listed in paragraph 4., APPENDIX - A, Table 1 of GE GE90 Service Bulletin (SB) 72-1201 R01, dated April 28, 2021 (GE90 SB 72-1201 R01) or paragraph 4., APPENDIX - A, Table 1 of GE GE90-100 SB 72-0857 R01, dated April 28, 2021 (GE90-100 SB 72-0857 R01).

(d) Subject

Joint Aircraft System Component (JASC) Code 7260, Turbine Engine Accessory Drive.

(e) Unsafe Condition

This AD was prompted by two separate in-flight shutdowns resulting from the failure of the TGB radial gearshaft. The FAA is issuing this AD to prevent failure of the

TGB radial gearshaft. The unsafe condition, if not addressed, could result in failure of one or more engines, loss of thrust control, and damage to the aircraft.

(f) Compliance

Comply with this AD within the compliance times specified, unless already done.

(g) Required Actions

(1) At the next engine shop visit after the effective date of this AD, perform a visual inspection of the affected TGB radial gearshaft using the Accomplishment Instructions, paragraph 3.A.(3)(a) 1 through 3, of GE90 SB 72-1201 R01 or GE90-100 SB 72-0857 R01, as applicable.

(2) If, during the visual inspection required by paragraph (g)(1) of this AD, discrepancies are found that meet the criteria in the Accomplishment Instructions, paragraph 3.A.(4)(a) or 3.A.(4)(b), of GE90 SB 72-1201 R01 or GE90-100 SB 72-0857 R01, before further flight, replace the TGB radial gearshaft with a part eligible for installation.

(h) Definitions

(1) For the purpose of this AD, an “engine shop visit” is when the compressor discharge pressure seal joint is disassembled.

(2) For the purpose of this AD, a “part eligible for installation” is a TGB radial gearshaft that does not have raised material or rework on the teeth chamfers as described in the Accomplishment Instructions, paragraph 3.A.(4)(a) or 3.A.(4)(b), of GE90 SB 72-1201 R01 or GE90-100 SB 72-0857 R01.

(i) Credit for Previous Actions

You may take credit for the inspection of the affected TGB radial gearshaft required by paragraph (g)(1) of this AD if you performed the inspection before the effective date of this AD using GE GE90 SB 72-1201 R00, dated January 5, 2021, or GE GE90-100 SB 72-0857 R00, dated January 5, 2021.

(j) Alternative Methods of Compliance (AMOCs)

(1) The Manager, ECO Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards

District Office, as appropriate. If sending information directly to the manager of the certification office, send it to the attention of the person identified in Related Information. You may email your request to ANE-AD-AMOC@faa.gov.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

(k) Related Information

(1) For more information about this AD, contact Stephen Elwin, Aviation Safety Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803; phone: (781) 238-7236; fax: (781) 238-7199; email: Stephen.L.Elwin@faa.gov.

(2) For service information identified in this AD, contact General Electric Company, GE Aviation, Room 285, 1 Neumann Way, Cincinnati, OH 45215; phone: (513) 552-3272; email: aviation.fleetsupport@ae.ge.com; website: www.ge.com. You may view this referenced service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 1200 District Avenue, Burlington, MA 01803. For information on the availability of this material at the FAA, call (781) 238-7759.

Issued on July 9, 2021.

Gaetano A. Sciortino, Deputy Director for Strategic Initiatives,
Compliance & Airworthiness Division,
Aircraft Certification Service.

[FR Doc. 2021-16758 Filed: 8/11/2021 8:45 am; Publication Date: 8/12/2021]